

L 12174-66

ACC NR: AP6000171

9% Ni the hysteresis loop changed into a branched curve, which may be attributed to the presence of a refractory structural component in the structure of the solid specimens. During the second series, alloys containing 1.0, 1.82, 3.0, 4.0 and 9.0% (at.) Ni were investigated. The specimens were first heated to 900-1000°C and kept for some time at this temperature before measuring the damping decrement during cooling. The plotted isotherms of viscosity showed that viscosity increases with the Ni content of the alloy particularly when this content is increased to 2% and the temperatures are within the 400-600°C range. It is shown that the Einstein formula for colloidal solutions:

$$\eta = \eta_0 \left( 1 + 2.5 \frac{v}{V} \right), \quad (1)$$

(where  $\eta$  and  $\eta_0$  are the viscosities of the melt and the pure solvent,  $v$  is the total volume of the first coordination spheres of dissolved atoms, and  $V$  is the volume of the melt) may be applied to describing the viscosity properties of diluted metal solutions with strongly interacting atoms, on the ground that, in the event of a strong interaction between heterogeneous atoms to an extent exceeding the energy of thermal motion, the atoms of the solvent in the neighborhood of the atom of the dissolved component (within the confines of the first or even the second coordination spheres) display a much smaller mobility than in the remaining volume of the solution.

Card 2/3

L 12174-66

ACC NR: AP6000171

These findings may be explained as follows: When the Ni content and the heating temperature are not too high, the complexes constituted by the solute atom and the neighboring bound atoms may be considered as rigid spherical formations which are spaced so far apart that their interaction may be disregarded. Increasing the Ni content above 2% (at) leads to such an increase in the number of complexes and such a pronounced change in the hydrodynamic conditions within the melt that the mechanism of viscous flow in which the structural units are atoms of the solvent (Sn) and complexes becomes inexpedient from the standpoint of energetics and is replaced by a mechanism in which the units of flow are represented by individual atoms of the components. This is why further addition of Ni causes a less sharp increase in melt viscosity. Orig. art. has: 5 figures, 4 formulas.

SUB CODE: 11, 20/ SUBM DATE: 09Apr64/ ORIG REF: 005/ OTH REF: 000

FIW  
Card 3/3

I 12173-66 EWT(m) DS/JD/JW  
 ACC NR: AP6000172 UR/0148/65/000/009/0013/0016  
 AUTHOR: Gvozdeva, L. I.; Lyubimov, A. P. 44,55 44,55 7.3 B  
 ORG: Moscow Institute of Steel and Alloys (Moskovskiy institut stali i splavov)  
 TITLE: Relationship between thermodynamic properties and viscosity  
 SOURCE: IVUZ. Chernaya metallurgiya, no. 9, 1965, 13-16 18  
 TOPIC TAGS: Fluid viscosity, binary alloy, viscous flow, eutectic system, tin, cadmium, lead 7 44,55  
 ABSTRACT: The article presents a formula for calculating the viscosity of binary liquid mixtures in the absence of chemical interaction between the mixture's components, according to the data on these components:

$$\eta = (\eta_1 N_1 + \eta_2 N_2) \frac{v_{ad.mix.}}{v_{ad.mix.} + \Delta V},$$

(1)

UDC: 669.2.66-971.532.13

Card 1/2

L 12173-66

ACC NR: AP6000172

where  $\eta$  is the viscosity of mixture;  $\eta_1$  and  $\eta_2$  are viscosities of each of the two components at a given temperature; ( $N_1$  and  $N_2$  are the molar fractions of the components);  $V$  ad. mix. is the additively calculated free volume of mixtures at a given temperature. This formula implies that the viscosity isotherms must be close to additive curves when  $\Delta V = 0$  where  $\Delta V$  is the increase in volume which characterizes most of the simple eutectic systems on formation of melts, as compared with the additive sum of volumes of the components, and this was indeed confirmed by experimentally investigating the viscosity of Sn-Cd and Pb-Cd at 350°C and 500°C. The proposed formula cannot be used to calculate the viscosity of systems with strong interaction between components, since then, in addition to the shortening of interatomic distances, other factors too may markedly affect viscosity: increase in the size of the particles participating in the process of viscous flow, and increase in the activation energy. Orig. art. has: 1 figure, 1 table, 3 formulas.

SUB CODE: 11, 20/ SUBM DATE: 10Apr65/ ORIG REF: 001/ OTH REF: 007

HW

2/2

Card

L 00865-67 EFT(m)/T/EWP(t)/ETI IJP(c) JD/WW/HW/JG

ACC NR: AT6022709

SOURCE CODE: UR/2848/66/000/041/0166/0170

AUTHORS: Gotgil'f, T. L.; Lyubimov, A. P. 56  
841

ORG: Moscow Institute of Steel and Alloys, Department of Experimental Physics and Solid State Physics (Moskovskiy institut stali i splavov, Kafedra eksperimental'noy fiziki i fiziki tverdogo tela)

TITLE: Investigating the phenomenon of viscosity hysteresis in metallic melts

SOURCE: Moscow. Institut stali i splavov. Sbornik, no. 41, 1966. Fizicheskaya khimiya metallurgicheskikh protsessov i sistem (Physical chemistry of metallurgical processes and systems), 166-170

TOPIC TAGS: gallium, nickel containing alloy, tin containing alloy, fluid viscosity measurement 27 27 27

ABSTRACT: The kinetics of the viscosity hysteresis in Ga and NiSn (10 at. % Ni) melts was studied. The experimental procedure for the determination of the viscosity coefficients is described by Ye. G. Shvidkovskiy (Nekotoryye voprosy vyazkosti rasplavov metallov, Gostekhizdat, 1955). The experimental results are presented graphically (see Fig. 1). The electrical resistivity of gallium was studied as a function of temperature, and the results of this study are shown in Fig. 2. It is concluded that liquid gallium retains a semblance of solid structure up to 250C. To obtain an equilibrium melt of the alloy NiSn, the latter must either be annealed at a constant temperature for a long time or be superheated to high temperatures.

Card 1/2

I. 00865-67

ACC NR: AT6022709

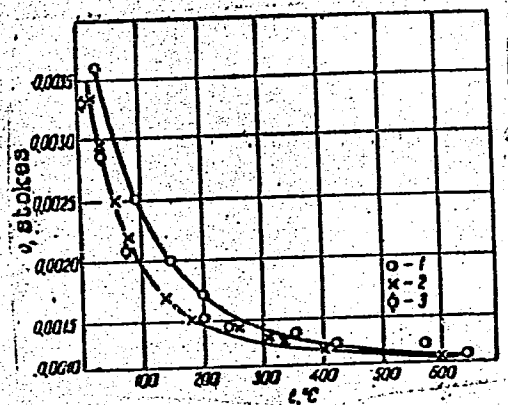


Fig. 1. Temperature dependence of the kinematic viscosity of gallium. 1 - heating; 2 - cooling; 3 - asymptotic values, obtained as a result of isothermal annealing.

Orig. art. has 5 graphs.

SUB CODE: 11/  
Card 2/2 IS

SUBM DATE: none/

ORIG REF: 004/

OTH REF: 002

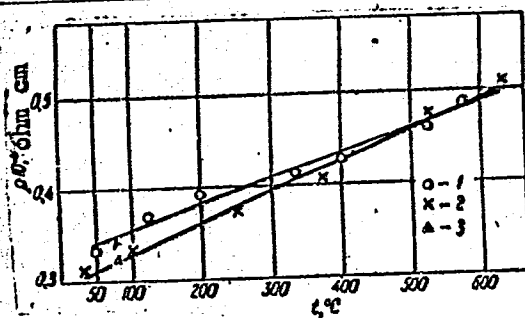


Fig. 2. Temperature dependence of electrical resistivity of gallium. 1 - heating; 2 - cooling; 3 - change in the electrical resistivity after 20 min.

ACC NR: AP6034759

(N)

SOURCE CODE: UR/0020/66/170/005/1126/1129

AUTHOR: Gotgil'f, T. L.; Lyubimov, A. P.

ORG: Moscow Steel and Alloys Institute (Moskovskiy institut stali i splavov)

TITLE: Structural modifications in molten thallium

SOURCE: AN SSSR. Doklady, v. 170, no. 5, 1966, 1126-1129

TOPIC TAGS: thallium, metal structure, molten metal

ABSTRACT: It has been found that direct investigation of short-range order structural modifications in molten metals (by roentgenology, neutronography, and electronography) takes much longer than the modifications themselves, depending on hysteretic properties of the metal. A new method was required, independent of fixed temperatures, but including a time-lag element. Modifications of viscosity and electro-conductivity were first observed in Tl-Bi alloys, and thallium was selected for investigation of its anomalous hysteretic relation of viscosity to heat at 350 to 400C. Experiments are described in which solid specimens were melted in a helium atmosphere to measure viscosity and in a vacuum to gage electric resistance. The metal melted rapidly within 5 to 12 min at various temperatures from 300 to 600C, with hysteresis most obvious between 350 and 400C, due to structural modifications in that range, probably related with changes in electron density. It was found that degrees of viscosity are not related to any stage of stability or any fixed temperature without regard to a time

Card 1/2

UDC: 541.12.036

ACC NR: AP6034759

element; an isothermic time lag is essential in order for the structural changes to stabilize. This paper was presented by Academician P. A. Rebinder 3 Mar 1966. The authors express their deep gratitude to Corresponding Member of the AN SSSR B. V. Deryagin for a discussion of the work, and to Prof. D. K. Delashchenko for constant consultations and interest in all stages of the work. Orig. art. has: 3 figures.

SUB CODE: 11/ SUBM DATE: 26Jan66/ ORIG REF: 008/ OTH REF: 005

Card 2/2



PUSHKAREV, V.V.; TKACHENKO, Ye.V.; YEGOROV, Yu.V.; LYUBIMOV, A.S.

Sorption of some radioactive isotopes from aqueous solutions by  
active manganese dioxide. Radiokhimiya 4 no.1:49-54 '62.  
(MIRA 15:4)

(Radioisotopes) (Sorption) (Manganese oxides)

TEGOROV, Yu.V.; IVUSHIMOV, A.S.; KHRUSTALEV, B.N.

Radionuclides in sorption systems. Part 3: Effect of hydrogen-  
ion concentration. Radiokhimiya 7 no.4:386-394 '65.

(MIRA 18:8)

L 34050-66 EWT(m)/T IJP(c) DS/WW  
 ACC NR: AP6025485 SOURCE CODE: UR/0186/66/008/001/0008/0014  
 AUTHOR: Yegorov, Yu. V.; Nikolayev, V. M.; Lyubimov, A. S. 64  
 ORG: none 13  
 TITLE: Radiocolloids in sorptive systems. IV. Role of neutral electrolyte  
 SOURCE: Radiokhimiya, v. 8, no. 1, 1966, 8-14  
 TOPIC TAGS: electrolyte, sorption, cesium, rubidium  
 ABSTRACT: The behavior of distributing micro-component-radiocolloid is investigated in a sorptive system with a variable concentration of neutral electrolyte, and it is shown that if stepwise overcharging of neutral radiocolloid particles by electrolyte ions is assumed, the coefficient of gross distribution depends on the electrolyte composition according to a hyperbolic curve. Simplified variants of the isotherm are proposed and verified for the case of sorptions of  $Ce^{144}$  by vermiculite from a sodium nitrate medium and sorption of  $Ru^{106}(III)$  by activated manganese dioxide from a potassium chloride medium. It is shown that one of the approximate formulas describing this system can be also derived from the assumption of a relationship of the heat effect of radiocolloid sorption with concentration of neutral electrolyte. V. P. Savel'yev participated in the experimental work. Orig. art. has: 3 figures and 24 formulas.  
 JPRS: 35,728  
 SUB CODE: 07 / SUBM DATE: 12Jul65 / ORIG REF: 014 / OTH REF: 006  
 Card 1/1 UDC: 541.183.2"541.183.5

313G4  
S/124/61/000/010/039/056  
D251/D301

11-7100  
AUTHORS:

Borisov, A.A., Kogarko, S.M. and Lyubimov, A.V.

TITLE:

On applying shock tubes to the investigation of chemical reactions

PERIODICAL:

Referativnyy zhurnal. Mekhanika, no. 10, 1961, 91, abstract 10 B639 (Zh. prikl. mekhan. i tekhn. fiz., 1960, no. 3, 175-183)

TEXT:

By the method of penumbral photoanalysis, the distribution is investigated of shock waves within a shock tube filled in one case with argon or nitrogen and in the other with the mixture 97% Ar + 3% (11/12 O<sub>2</sub> + 1/12 C<sub>7</sub>H<sub>16</sub>). Measurement of the time of existence of stationary conditions behind the wave, reflected from the end of the shock tube established that the experimental value of this time differs considerably from that obtained from the theory. In the investigation of an exothermic reaction after reflection from the end and incidence on the end of the shock waves, it was estab-

Card 1/3

31304  
S/124/61/000/010/039/056  
D251/D301

On applying shock tubes...

lished that even with a strong dilution of the reagents by an inert gas the reaction has an explosive character with the formation of intensive compression waves behind the reflected wave. In these conditions an empirical formula is obtained for the time of ignition delay  $\tau$  (in sec)  $\tau = 10^{-7} p^{-1.8} \exp(C/RT)$ , where  $p$  is the initial pressure for the reaction ( $3 \pm 20$  atm),  $T$  is the temperature ( $2400 \pm 1500^\circ K$ ),  $C = 30,000$  cal/mole,  $R$  is the gas constant. The authors conclude that the investigation of exothermic reactions behind the reflected wave in shock tubes, by the registration of the velocity of the reflected shock wave, is complicated by interaction with the flow behind the incident wave and the breakdown of uniformity of pressure behind the reflected wave. In this connection, the region of applicability of the method of reflected shock waves as a means of measuring the ignition delay is limited to mixtures strongly diluted by inert gases and at not too great Mach numbers of the incident waves. It is shown that in investigating exothermic reactions behind the incident waves, the consideration arises of the absence of an ideal homogeneous picture with a plane

Card 2/3

On applying shock tubes...

31304  
S/124/61/000/010/039/056  
D251/D301

front of the shock wave and homogeneous combustion. [Abstracter's  
note: Complete translation]

Card 3/3

X

BORISOV, A.A.; KOGARKO, S.M.; LYUBIMOV, A.V.

Ignition of methane mixtures by shock waves. Dokl. AN SSSR 149  
no.4:869-871 Ap '63. (MIRA 16:3)

1. Institut khimicheskoy fiziki AN SSSR. Predstavleno akademikom  
N.M.Semenovym.

(Methane) (Inflammability) Shock waves)

L 2933-66 EWT(m)/EPF(c)/EWP(j)/T/EWA(c) WE/RM

ACCESSION NR: AP5023369

UR/0020/65/164/001/0125/0126

AUTHORS: Borisov, A. A.; Kogarko, S. M.; Lyubimov, A. V.

TITLE: On the instability of a liquid surface during sliding of detonation and impact waves upon it

SOURCE: AN SSSR. Doklady, v. 164, no. 1, 1965, 125-126 and top half of insert facing page 126

TOPIC TAGS: liquid surface, impact wave, detonation wave, glycerin, flash point, cetane

ABSTRACT: The effect of sliding detonation and impact waves on a liquid surface and the flash points of the vapors resulting from the passage of the waves over the liquid surface were determined. The rate of gas flow over the liquid surface in all experiments performed exceeded the critical velocity  $U_0$ .

$$U_0 < \frac{4\sigma}{\rho_1}$$

where  $\sigma$  is the surface tension coefficient,  $g$  - acceleration due to gravity,  $\rho$  - the density of the liquid, and  $\rho_1$  the gas density behind the wave front. Photographs of the disturbance produced on the surface of glycerin by the passage of detonation waves over it are presented. The waves were produced by the explosion of

Card 1/2



L 2933-66

ACCESSION NR: AP5023369

an oxygen-hydrogen mixture. Flash points of kerosene and cetane vapors produced by oxygen impact waves were determined. It was found that the flash point of the vapor-oxygen mixture was dependent on the Mach number. A cetane-oxygen mixture ignites at Mach number 2.1 and a cetane-air mixture at Mach number 2.6. Orig. art. has: 1 equation. [Abstractor's note: no photographs are included in the present article.]

ASSOCIATION: Institut khimicheskoy fiziki, Akademii nauk SSSR (Institute for Chemical Physics, Academy of Sciences, SSSR); Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering-Physics Institute) 44,55


SUBMITTED: 06Feb65

ENCL: 00

SUB CODE: GC, ME

NO REF SOV: 004

OTHER: 001

  
Card 2/2

USTINSKIY, A.A.; STEPANOV, V.Ye., starshiy inzh.; LYUBIMOV, A.V., inzh.;  
SHATOKHINA, A.A., inzh.; KOVGANKO, E.I., starshiy laborant

Measures for improving railroad radio communications with selective  
ringing. Avtom., telem. i sviaz' 6 no.3:21-25 Mr '62.

(MIRA 15:3)

1. Rukovoditel' laboratorii provodnykh i radioreleynykh svyazey  
Vsesoyuznogo nauchno-issledovatel'skogo instituta zheleznodorozhnogo  
transporta Ministerstva putey soobshcheniya (for Ustinskiy).
2. Laboratoriya provodnykh i radioreleynykh svyazey Vsesoyuznogo  
nauchno-issledovatel'skogo instituta zheleznodorozhnogo transporta  
Ministerstva putey soobshcheniya (for Stepanov, Lyubimov, Shatokhina,  
Kovganko).

(Railroads--Communication systems)

LYUBIMOV, A. Ye.

Heating of gas chambers.

SO: TABCON Veterinariya; 22; (2-3); Feb/Mar 45; Unclassified  
Chemico-Toxicological Laboratory, Moscow City Veterinary Department

LYUBIMOV, A. Ye.

Fixation of horses in gas chamber.

SO: Veterinariya; 23; 2-3; February/March 1 46; Unclassified. TABCON

Chemico-Toxicological Laboratory, Moscow City Veterinary Department

LYUBIMOV, A. YE.

36805. O Germetizatsii Gazokamer. Veterinariya, 1949, No. 12, c. 44

SO: Letopis' Zhurnal'nykh Statey, Vol. 50, Moskva, 1949

154

CA

**Penetrating and insecticidal properties of sulfur dioxide**  
A. E. Lyubimov. *Veterinariya* 28, No. 4, 35-8/1951.  
SO<sub>2</sub> is capable of penetrating as much as 12 inches of brick material and of causing death of flies placed beyond the brick usually within 18-55 min. As the same brick sample is re-used, death of the insects occurs at shorter intervals, indicating considerable adsorption of SO<sub>2</sub> on the solid. Ordinary plaster covered with calcimine paint is also readily penetrated by the gas; a thickness of 2.5 cm. results in death of flies within 3-25 min. Tarpaulin (untreated) is rapidly penetrated, but material treated with molten petrolatum appears to be a complete barrier as no SO<sub>2</sub> penetration occurs in 50 min. and flies are not affected. G. M. K.

LYUBIMOV, B.

Meetings in the Kama Valley Moskva, Gos. izd-vo detskoi lit-ry, 1952. 219 p.  
(Nasha rodina) (53-15619)

DK 511.KI7L5

LYUBIMOV, B.

Searcher. Okhr.truda i sots.strakh. 5 no.10:26-27 0 '62.  
(MIRA 15:11)

(Power presses--Safety appliances)



LYUBIMOV, B.

The greatest joy. Ckhr.truda i sots.strakh. 6 no.1412-13 Ja  
'63. (MIRA 1641)  
(Moscow--Bearing industry--Hygienic aspects)

VASIL'YEV, A.V., kand.tekhn.nauk; KREYSLER, A.A., ~~kand.tekhn.nauk~~; LYUBIMOV, B.A.,  
kand.tekhn.nauk

"Design and calculations of tractors" by I.B.Barskii. Reviewed by  
A.V.Vasil'ev, A.A.Kreisler, B.A.Liubimov. Trakt. i sel'khoz mash. 33 no.1:  
47-48 Ja '63. (MIRA 16:3)  
(Tractors--Design and construction) (Barskii, I.B.)

CHUDAKOV, D. A., LYUBIMOV, B. A.

Tractors

Basic questions in constructing hanging tractor units. Sel'khoz mashina  
No. 1, 1952.

Monthly List of Russian Accessions, Library of Congress, April, 1952.  
Unclassified.

LYUBIMOV, B. A.

USSR/Engineering - Tractors

Card 1/1

Authors : Lyubimov, B. A., and Pallon, Yu. N.

Title : The suspension system of the "Belarus" (White Russia) tractor

Periodical : Avt. Trakt. Prom. Ed. 1, 8-11, January 1954

Abstract : The Scientific Automotive Technical Institute, together with the Minsk and Lepetsk tractor factories, have designed a new suspension system and a hydraulic steering for the "Belarus" tractor, which at present are mass produced. Description, specification, and efficiency calculation of the above system is given. Drawings; illustration, and the table of characteristics.

Institution : .... *Sci. Res. Auto tractor Inst.*

Submitted : ....

LYUBIMOV, B. A.

USSR/Miscellaneous

Card 1/1 : Pub. 12 - 10/12

Authors : Lyubimov, B. A.

Title : The hydraulic mechanism for the DT-54 tractor

Periodical : Avt. trakt. prom. 4, 29-31, Apr 1954

Abstract : The hydraulic equipment of the DT-54 farm tractor for the control of other farming implements operated by the tractor is described. Drawings; illustrations.

Institution : Scientific Research Institute for Auto-Tractor Construction

Submitted : .....

LYUBIMOV, B.A.; MALAKHOVSKIY, V.E., kandidat tekhnicheskikh nauk.

New small-sized tractor chassis for agricultural work. Art.1  
trakt.prom. no.4:2-5 Ap '56. (MLRA 9:8)

1. Nauchno-issledovatel'skiy avtotraktornyy institut.  
(Tractors)

LYUBIMOV, B.A.

Unified hydraulic suspension systems for single machines or aggregates. Trakt. i sel'khoz mash. no. 6:3-7 Je '58. (MIRA 11:7)

1. Nauchno-issledovatel'skiy avtotraktorny institut.  
(Agricultural machinery--Hydraulic equipment)

LYUBIMOV, B.A.; POLUKARPOV, Yu. I.

Tractors at the spring fair in Leipzig. Trakt. i sel'khozash  
no. 7:42-46 J1 '58. (MIRA 11:7)

(Tractors)



BEGIDZHANOVA, A.P.; LYUBIMOV, B.A.; PALLON, Yu.N.

Plastic substitutes for protective leather washers of  
hydraulic cylinders. Trakt. i sel'khoz mash. 31 no.7:14-17  
Jl '61. (MIRA 14:6)

1. Nauchno-issledovatel'skiy avtotraktornyy institut.  
(Washers (Mechanical engineering))

LYUBIMOV, B.A., kand. tekhn. nauk

Tractors at the exhibition in Paris in 1964. Trakt. i sel'khozmasa.  
no.9:43-46 S '64. (MIRA 17:11)

1. Gosudarstvennyy soyuznyy nauchno-issledovatel'skiy traktorny  
institut.

Lyubimov, B. G.

AID P - 3960

Subject : USSR/Mining

Card 1/2 Pub. 78 - 5/27

Author : Lyubimov, B. G.

Title : Methods for designing shapes for turbine blades of the turbo-drill.

Periodical : Neft. Khoz., v. 33, #12, 12-17, D 1955

Abstract : A mathematical method to calculate profiles of turbine blades developed by M. I. Zhukovskiy of the Central Scientific Research Institute for Boilers and Turbines im. I. I. Polzunov (TsKTI) is presented. This method is based on the solution of the direct and inversed problem of a potential flow around the blading profiles. The calculation of a whirl-free flow around blades of any shape is considered to be the direct problem, and the inverse problem consists in shaping the turbine blades according to an assumed distribution of velocities. Diagrams, tables.

Neft. khoz., v. 33, #12, 12-17, D 1955

AID P - 3960

Card 2/2 Pub. 78 - 5/27

Institution : None

Submitted : No date

LYUBIMOV, B.G.

Possibilities of using small-size turbodrills for borehole investigations  
of structural geology. Neft.khoz. 34 no.8:6-8 Ag '56. (MLRA 9:10)  
(Boring) (Turbodrills)

LYUBIMOV, B. G., Cand Tech Sci -- (diss) "Study of the effectiveness of turbine drills of small <sup>size</sup> ~~size~~ in relation to their constructive parameters." Mos, 1958. 23 pp (Min of Higher Education USSR, Mos Geol-Prospecting Inst im S. Ordzhonikidze), 120 copies (KL, 17-58, 108)

- 43 -

LYUBIMOV, B.G., inzh.

Designing turbodrill turbines for drilling small-diameter wells.  
Trudy VNIIBT no.1:26-35 '58. (MIRA 11:12)  
(Turbodrills)

LYUBIMOV, B.G.

Ways of increasing the efficiency of turbodrill turbines. Neft.  
khoz. 39 no.7:11-15 J1 '61. (MIRA 14:6)  
(Oil well drilling)  
(Turbodrills)



LYUBIMOV, B.G., kand.tekhn.nauk

Characteristic coefficients in hydraulic calculations of turbodrill  
turbines. Nauch.zap.Ukrniiproekta no.4:31-36 '61. (MIRA 15:1)  
(Turbodrills)

GUSMAN, M.T.; LYUBIMOV, B.G.; BARSHAY, G.S.

Possibilities of increasing the torque in sectionalizing  
turbodrills. Neft. khoz. 40 no.11:12-16 N '62.

(MIRA 16:7)

(Turbodrills) (Torque)

LYUBIMOV, Georgiy Aleksandrovich; LYUBIMOV, Boris Georgiyevich;  
GEYMAN, M.A., nauchn. red.; SHVETSOVA, E.M., ved. red.;  
DEBYANENKO, V.I., tekhn. red.

[Theory and design of axial multistage turbodrill turbines]  
Teoriia i raschet osevykh mnogostupenchatykh turbin turbo-  
burov. Leningrad, Gostoptekhnizdat, 1963. 178 p.  
(MIRA 17:2)

LYUBIMOV, Boris Isaakovich; SEMENOV, S.M., red.; KOROBOVA, N.D.,  
tekhn. red.

[Concern for every man; notes of a committee chairman]  
Zabota o kazhdom cheloveke; zapiski predsedatelia tse-  
khkoma. Moskva, Profizdat, 1962. 95 p. (Bibliotekhka prof-  
soiuznogo aktivista, no.10(34)) (MIRA 15:7)  
(Moscow--Works councils)

LYUBIMOV, Boris Isaakovich; SEMENOV, S.M., red.; ZAYTSEVA, L.A.,  
tekhn. red.

[A factory committee develops the creative initiative of  
the masses] Zavkom razvivaet tvorcheskuiu initsiativu mass.  
Moskva, Profizdat, 1963. 94 p. (Bibliotachka profsoiuznogo  
aktivista, no. 6(54)) (MIRA 16:7)  
(Moscow--Automobile industry workers) (Trade unions)

LYUBIMOV, B. I.: Master Med Sci (diss) -- "On substances antagonistic to  
aminazin". Moscow, 1958. 14 pp (Acad Med Sci USSR), 200 copies (KL, No 6,  
1959, 145)

LYUBIMOV, B.I.

Aminazine antagonists with special reference to hypotensive and  
adrenolytic effects [with summary in English]. Biul. eksp. biol.  
1 med. 45 no. 5: 65-69 My '58 (MIRA 11:6)

1. Iz laboratorii chastnoy farmakologii (zav. - deystvitel'nyy  
chlen AMN SSSR V.V. Zakusov) Instituta farmakologii i khimioterapii  
(dir. - deystvitel'nyy chlen AMN SSSR V.V. Zakusov) AMN SSSR,  
Moskva. Predstavlena deystvitel'nyy chlenom AMN SSSR V.V.  
Zakusovym.

(CHLOROPROMAZINE, effects,  
adrenolytic & hypotensive, antag. eff. of various  
drugs (Rus))

(BLOOD PRESSURE, effect of drugs on,  
chloropromazine, antag. eff. of various drugs  
on hypotensive activity (Rus))

LYUBIMOV, B.I.

Comparative evaluation of the activity of neurologic substances  
of the phenothiazine series under experimental conditions. Farm.i  
toks. 24 no.2:136-140 Mr-Apr '61. (MIRA 24:6)

1. Laboratoriya chastnoy farmakologii (zav. - deystvitel'nyy chlen  
AMN SSSR prof. V.V.Zakusov) Instituta farmakologii i khimioterapii  
AMN SSSR.

(PHENOTHIAZINE)



VIKHLIYAYEV, Yu.I.; LYUBIMOV, B.I.

Psychopharmacological agents of the depressing type. Vest.  
AMN SSSR 16 no.10:78-82 '61. (MIRA 14:11)  
(PSYCHOPHARMACOLOGY)

LYUBIMOV, B.I.; RAYEVSKIY, K.S.

Relationship between ataractic and other types of central action of  
some phenothiazine derivatives. Farm. i toks. 25 no.1:24-27 Ja-F  
'62. (MIRA 15:4)

1. Laboratoriya chastnoy farmakologii (zav. - deystvitel'nyy chlen  
AMN SSSR prof. V.V.Zakusov) Instituta farmakologii i khimioterapii  
AMN SSSR.

(PHENOTHIAZINE)

(NERVOUS SYSTEM)

LYUBIMOV, B.I.

Compound use of aminazine antagonists. Uch.zap. Inst.farm.  
i khimioter. AMN SSSR 3:104-114'63. (MIRA 16:9)

1. Department of Pharmacology (Head - Member of Academy of  
Medical Sciences U.S.S.R. Prof. V.V.Zakusov) Institute of  
Pharmacology and Chemotherapy, Moscow, U.S.S.R.  
(CHLORPROMAZINE) (STIMULANTS)

RAYEVSKIY, K.S.; LYUBIMOV, B.I.; KLYGUL', T.A.

Pharmacology of triptazine. Zhur. nevr. i psikh. 64 no. 12:  
1868-1876 '64. (MIRA 18:1)

1. Institut farmakologii i khimioterapii AMN SSSR, Moskva.

LYUBIMOV, B.I.

Second International Pharmacological Congress. Part 1. 1964.  
no. 4: 506-507. 11-Ag '64. (MIRA 1964)

LYUBIMOV, B.N.

Necessary corrections to B.S. Zucharov's work. Trudy Inst. kon. de'la  
AN USSR no.1:128-131 '51. (MLRA 1:2)  
(Mining machinery) (Mechanical engineering)

LYUBIMOV, B. N.

Coal-mining Machinery

Establishing criteria concerning the resistance of coal to the work of cutting tools.  
Ugol' 27 No. 9, 1952.

Monthly List of Russian Accessions, Library of Congress, Dec. 1952. Unclassified

LYUBIMOV, B.N.

Remarks on A.I. Kukhtenko's article: "Automatic load regulator for cutting machines and coal combines." Ugol' 28 no.12:42-43 D '53. (MLBA 6:11)

1. Giprouglemash. (Kukhtenko, A.I.) (Coal-mining machinery)



LYUBIMOV, B.N.

MILOSERDIN, M.M.

On the application of formulas and conclusions from the work of Engineer B.N.Liubimov to the calculation and analysis of concrete systems of extractors. Ugol' 29 no.7:34-36 J1 '54. (MIRA 7:7)

1. Giprouglenash.  
(Coal-mining machinery) (Liubimov, B.N)

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Toward the problems of the theory of the working process of the mine parachute. Ugol' 29 no.7:36-40 J1 '54. (MLBA 7:7)

1. Giproglemash.  
(Mine hoisting--Safety appliances)

Lyubimov, B.N.

U.S.S.R.

✓ 4952. PLANNING UNITS - ONE LINE FOR MECHANIZATION OF MINING OPERATIONS. Lyubimov, B.N., Ivanov, A.V. and Grigor'ev, L. Ye. (Ugol (Coal), Jan. 1955, 21-29). A discussion of the relative merits of chain type cutters and coal planes leads to an illustrated description of three promising "dynamic" planes which utilize the "static" type with its steady cut, are suitable for anthracite. Plane VM-f is made to vibrate by the rotation of unbalanced masses, plane AS-f has a spring mechanism and four large chisel-shaped cutters, and plane VDG-f has four large electro-pneumatic hammers. (L).

LYUBIMOV, B.N.

Analysis and criticism of basic premises in the work of P.S.  
Kucherov, "Dynamics of vibrating coal cutters." Sbor.trud.Inst.  
gor.dela AN URSR no.3:151-160 '56. (MLBA 9:8)  
(Coal mining machinery--Book reviews) (Kucherov, P.S.)

DEMIDOV, Pavel Nikolayevich; KARTAVIY, Nikolay Grigor'yevich;  
PAVLYUCHENKO, Dmitriy Nikolayevich; LYUBIMOV, Boris  
Nikolayevich; KRIVONOSOV, V.F., retsenzent; SKOCHINSKIY,  
A.A., nauchnyy sotr., red.; PANOV, A.D., otv. red.; AERAMOV,  
V.I., red. izd-va; BOLDYREVA, Z.A., tekhn. red.

[Coal plows]Ugol'nye strugi. [By] P.N.Demidov i dr. Moskva,  
Gosgortekhnizdat, 1962. 295 p. (MIRA 15:7)

1. Donetskii gosudarstvennyy proyektno-konstruktorskiy i  
eksperimental'nyy institut ugol'nogo mashinostroyeniya  
(for Krivonosov). 2. Institut gornogo dela in. A.A.Skochinskogo  
(for Panov).

(Coal mining machinery)

PICHUGIN, A.A.; VLASOV, V.M.; MELAMED, V.Z.; LYUBIMOV, B.N.

Sprayer for dust settling sprinkler devices. Biul.TSIICHM  
no.4:50 '61. (MIRA 14:10)

(Sprinklers)

LYUBIMOV, B.S., inzh.

Railroad transportation of long and heavy reinforced concrete beams. Transp.stroi. 9 no.8:28-30 Ag '59.

(MIRA 13:1)

(Girders--Transportation) (Railroads--Freight)

LYUBIMOV, B. V.

7787. YEGORENKOV, S. L. i LYUBIMOV, B. V. Polezashchitnoye lesorazvedeniye severnom kazakhstane. Alma-Ata, kazgosizdat, 1955. 72s. s ill. 20sm. 7.000 EKZ. 95K--(55-3434) p 634.956.584(584.6)

SO: Knizhnaya Letopis', Vol. 7, 1955



LYUBIMOV, B.V., inzh.

Paint and varnish coatings. Vest. mash. 38 no.3:59-63 Mr '58.  
(Painting, Industrial) (MIRA 11:2)

LYUBIMOV B.V. Spetsialnye zashchitnye pokrytiya v mashinostroenii, inzh., retsenzent

[Special protective coatings used in machinery manufacture]  
Spetsial'nye zashchitnye pokrytiya v mashinostroenii. Moskva, Mashinostroenie, 1965. 326 p. (MIRA 18:8)

LYUBIMOV, B.V.

Paint and varnish coatings in the electric machinery industry. Elek-  
trosila no.19:51-58 '60. (MIRA 15:2)  
(Protective coatings)

ACC NR: AM5027769

Monograph

UR/

Lyubimov, B. V.

Special protective coatings in machinery manufacture (Spetsial'nyye zashchitnyye Pokrytiya v mashinostroyenii) 2d ed., rev. and enl. Moscow, Izd-vo "Mashinostroyeniye", 65. 0326 p. illus., biblio. 9,000 copies printed.

TOPIC TAGS: specialized coating, protective coating, polyethylene plastic, silicon compound, epoxy plastic, corrosion protection, machine industry

PURPOSE AND COVERAGE: This book views special types of protective paint coatings in different aggressive environments, their properties and perspectives for use in machine manufacture. A large part of the book deals with new types of paint such as polyethylene, silicon organic, epoxy and other paints. Also, the correct selection of coatings for special purposes and the techniques of applying them are presented. Domestic and foreign tests for the use of special types of coatings in machine manufacture are enumerated. This book is recommended for technical engineers in machine construction industries.

TABLES OF CONTENTS (abridged):

Preface ---3  
Ch. I. Paint materials and coatings ---7  
Ch. II. Technology of paint coatings ---83

Card 1/2

UIC: 62-76.001.11

ACC NR: AM5027769

Ch. III. Atmosphere-resistant coatings <sup>15</sup> ---167  
Ch. IV. Water-resistant coatings ---167  
Ch. V. Resistant coatings for the conditions of tropical environments ---208  
Ch. VI. Chemically resistant coatings ---228  
Ch. VII. Benzene-resistant coatings -265  
Ch. VIII. Heat-resistant coatings ---265  
Ch. IX. Electrical insulation/coatings ---284  
Ch. X. Current conducting coatings ---297  
Ch. XI. Resistant coatings for conditions of radioactive contamination ---301  
Ch. XII. Other types of special paint coatings ---306  
Appendix ---322  
Bibliography ---323

SUB CODE: 06,13/ SUBM DATE: 14May65/ ORIG REF: 048/ OTH REF: 007

Card 2/2

15(7)

PHASE I BOOK EXPLOITATION

SOV/3484

Lyubimov, Boris Vasil'yevich

Spetsial'nyye lakokrasochnyye pokrytiya v mashinostroyeni. (Special Paint and Varnish Protective Coatings in Machine-building Industry) Moscow, Mashgiz, 1959. 190 p. Errata slip inserted. 10,000 copies printed.

Reviewer: Ye. S. Gurevich, Candidate of Technical Sciences; Ed.: B. L. Agranat, Engineer; Ed. of Publishing House: A. I. Varkovetskaya; Tech. Eds.: O. V. Speranskaya and P. S. Frumkin; Managing Ed. for Literature on Machine-building Technology (Leningrad Division, Mashgiz): Ye. P. Naumov, Engineer.

PURPOSE: The book is intended for engineers and technicians working in industries which use paint and varnish coatings, particularly in the machine-building industry.

COVERAGE: The book analyzes special types of paint and varnish protective coatings, their properties and possibilities of their

Card 1/5

Special Paint and Varnish (Cont.)

SOV/3484

utilization in the machine-building industry. Separate chapters deal with special types of protective coatings which are resistant against various corrosive factors, such as: atmosphere, water and moisture, chemical agents, heat, tropical climatic conditions, etc. Electrical insulation properties and electric current conductivity of coatings are also considered. There are 30 references: 24 Soviet, 4 English and 2 German,

TABLE OF CONTENTS:

Introduction	3
Ch. I. Paint and Varnish Materials and Protective Coatings	5
1. Basic physicochemical properties of paint and varnish materials and coatings	6
2. Factors affecting the life of paint and varnish coatings	12
3. Characteristics of paint and varnish materials	13

Card 2/5

Special Paint and Varnish (Cont.)	SOV/3484
Ch. II. Technology of Paint and Varnish Coatings	33
1. Quality of paint and varnish materials	33
2. Preparation of surface for painting	35
3. Technique of applying paint and varnish coatings	44
Ch. III. Atmosphere-resistant Coatings	76
1. Conditions requiring the application of such coatings	76
2. Selection of paint and varnish materials	77
3. Technique of applying the atmosphere-resistant coatings	79
Ch. IV. Waterproof and Moisture-resistant Coatings	84
1. Conditions requiring the application of such coatings	84
2. Selection of paint and varnish materials	85
3. Technique of applying waterproof and moisture-resistant coatings	88
Ch. V. Coatings Which are Stable Under Conditions of Tropical Climate	90
1. Conditions requiring the application of such coatings	90
2. Selection of paint and varnish materials	92

Card 3/5



Special Paint and Varnish (Cont.)

SOV/3484

3. Technique of applying coatings which are stable under conditions of tropical climate	99
Ch. VI. Chemically Stable Coatings	106
1. Conditions requiring the application of such coatings	106
2. Selection of paint and varnish materials	108
3. Technique of applying chemically stable coatings	113
Ch. VII. Benzo-resistant and Oil-resistant Coatings	121
1. Conditions requiring the application of such coatings	121
2. Selection of paint and varnish materials	122
3. Technique of applying benzo-resistant and oil-resistant coatings	127
Ch. VIII. Heat-resistant Coatings	135
1. Conditions requiring the application of such coatings	135
2. Selection of paint and varnish materials	136
3. Technique of applying heat-resistant coatings	142
Ch. IX. Electrical Insulating Coatings	146
1. Conditions requiring the application of such coatings	146
2. Selection of paint and varnish materials	146

Card 4/5

Special Paint and Varnish (Cont.)

SOV/3484

3. Technique of applying electrical insulating coatings	151
Ch. X. Current-conducting Coatings	155
1. Conditions requiring the application of such coatings	155
2. Selection of paint and varnish materials and technique of applying the coatings	155
Ch. XI. Paint and Varnish Coatings for Wood	158
1. Conditions requiring the application of such coatings	158
2. Selection of color varnish materials	159
3. Technique of applying the coatings	159
Ch. XII. Other Types of Special Color Varnish Coatings	165
1. Temporary coatings	165
2. Luminous coatings	166
3. Light-absorbing coatings	167
4. Frost-resistant coatings	168
5. Nonflammable and refractory coatings	169
Appendixes	173
Bibliography	188
AVAILABLE: Library of Congress	TM/mmh
Card 5/5	4-26-60

LYUBIMOV, D.

Inspection practice of the State Insurance Administration. Fin.  
SSSR 21 no.5:74-78 My '60. (MIRA 13:7)

1. Starshiy inspektor Gosstrakha Leninskogo rayona Kiyeva.  
(Kiev--Insurance)

LYUBIMOV, D.A., inzhener, redaktor; DUGINA, N.A., tekhnicheskiiy redaktor

[Machine building technology; foundry production] Tekhnologiya  
mashinostroeniia; liteinoe proizvodstvo. Moskva, Gos. nauchno-tekhn.  
izd-vo mashinostroit. lit-ry, 1954. 50 p. (MLRA 9:9)  
[Microfilm]

1. Ural'skiy mashinostroitel'nyy zavod, Sverdlovsk.  
(Founding)

LYUBIMOV, D.A., inzhener, redaktor; DUGINA, N.A., tekhnicheskiy redaktor.

[Forging and stamping] Kovka i shtampovka. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry, 1954. 51 p. (MIRA 8:1)

1. Ural'skiy mashinostroitel'nyy zavod, Sverdlovsk.  
(Forging) (Dies (Metal-working))

LYUBIMOV D A

PHASE I BOOK EXPLOITATION

SOV/3482

Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti.  
Sverdlovskoye otdeleniye

Mekhanizatsiya i avtomatizatsiya mashinostroitel'nogo proizvodstva (Mechanization and Automation in the Machine-Building Industry) Moscow, Mashgiz, 1959. 519 p. 12,000 copies printed.

Ed.: Ye. V. Fal'mov, Doctor of Technical Sciences; Tech. Ed.: N. A. Dugina;  
Editorial Board: P. P. Vshivkov, Engineer, V. V. Kuvshinskiy, Candidate of Technical Sciences, Ye. V. Fal'mov, Doctor of Technical Sciences, Yu. P. Poruchikov, Candidate of Technical Sciences, V. V. Stepanov, Candidate of Technical Sciences, K. N. Sokolov, Candidate of Technical Sciences, V. I. Sokolovskiy, Candidate of Technical Sciences, M. I. Sustavov, Engineer, B. K. Shunayev, Candidate of Technical Sciences, and P. V. Chernogorov, Professor.

PURPOSE: This book is intended for production engineers and personnel engaged in industrial planning.

Card 1/15

Mechanization and Automation (Cont.)

SOV/3482

**COVERAGE:** The material presented in this book is said to be based on practices developed and tested in the machine-building plants of the Urals and of Siberia. Listed are various methods of mechanization and automation and their applications in foundries, forging shops, and assembly shops. Other fields of use include welding, hoisting, conveying, heat treatment, and quality control on an industrial scale. Various mechanisms, devices, tools, and instruments currently used in mechanization and automation of these industrial processes are described and illustrated. The equipment mentioned is said to have been produced by the plants using their own resources. The economic aspects of mechanization and automation are discussed. There are 494 Soviet references.

**TABLE OF CONTENTS:**

<i><b>BASIC TRENDS IN MECHANIZATION AND AUTOMATION IN MACHINE BUILDING</b></i> (Pal'mov, Ye.V., Doctor of Technical Sciences)	11
Automation of processing	12
Level of automation of manufacturing processes	15
Automation in foundries	16
Forging and stamping	18
Heat treatment of parts	20
Welding	21
Shops for mechanical machining	22
Problems of machine-building shops	28

Card 2/15

Mechanization and Automation (Cont.)

SOV/3482

MECHANIZATION AND AUTOMATION IN FOUNDRIES

1. Basic Trends (Poruchikov, Yu.P., Candidate of Technical Sciences)
  - Specialization in foundries and mechanization of molding 33
  - Mechanization of core making 34
  - Introduction of special casting methods 36
  - Shake-out, cleaning and chipping of castings 38
2. Labor-Saving Devices and Mechanisms for Pattern Makers (Rogozin, A. N., Engineer)
  - Creating conditions for the mechanization of pattern making 39
  - New means of mechanization 40
3. System of Machines and Mechanisms for Preparing Molding Mixtures (Lyubimov, D. A., Engineer)
  - Mechanization of casting sand preparation 50
  - Mechanization of facing compound preparation 52
  - Mechanization of preparation of rapid hardening compounds 53

Card 3/15



Mechanization and Automation (Cont.)

SOV/3482

- |  |    |
|--|----|
| 4. Full Mechanization of Molding (Lyubimov, D. A., Engineer)   | 58 |
| Making of molds  | 58 |
| Shaking out of castings from flasks  | 58 |
| Removal of used compounds  | 59 |
| 5. Continuous and Semicontinuous Pouring Into Moulds (Bezukladnikov, F.D., Engineer, M. B. Zayats, Engineer, and A. D. Popov, Candidate of Technical Sciences) | 59 |
| Continuous pouring   | 59 |
| Semicontinuous pouring of pipes  | 63 |
| 6. Cleaning and Chipping of Castings (Lyubimov, D. A., Engineer)   | 67 |
| Hydraulic-blast cleaning   | 67 |
| Shot-blast cleaning  | 70 |
| Tumbling in barrels  | 70 |
| 7. Mechanization of Foundries for Mass Production (Bernshteyn, S.I. Engineer)  | 72 |
| Examples of mechanization of molding operations  | 73 |
| Automatization of reprocessing of casting sand   | 75 |
| Mechanizations of lines for shake-out  | 76 |

Card 4/15

28(1)

SCV/118-59-1-2/16

AUTHORS: Lyubimov, D.A., Engineer

TITLE: Mechanization of Auxiliary Tasks in the Casting Shops of the Ural Machine Plant (Mekhanizatsiya na vspomogatel'nykh rabotakh v litejnykh tsekhakh Uralskogo zavoda)

PERIODICAL: Mekhanizatsiya i Avtomatizatsiya Proizvodstva, 1959, Nr 1, pp 32-35 (USSR)

ABSTRACT: The percentage of auxiliary operations in a casting shop in relation to the total labor effort is very high. In the Steel Shaping Shop of the Ural Machine Plant it reaches 70%. With this factor in mind, the author provides a general description of various mechanization production processes utilized in that plant's casting shops. They include: use of a transverse beam, enabling the operating of two 50 ton cranes traveling concurrently, for lifting a weight load exceeding the capacity of one crane, use of auxiliary bracket cranes to assist

Card 1/2

SOV/118-59-1-8/16

Mechanization of Auxiliary Tasks in the Casting Shops of the Ural Machine Plant.

busy overhead traveling cranes, use of electro-magnets to transport certain steel products, use of electric trucks and transporters with a flexible cable feed, use of gantry cranes in storage areas, replacement of conveyers, previously used for transporting dry materials (smoked earth, hot moulding sand, milled refractory clay) by pneumatic systems, use of a steam-pressure pipe conveyance system for liquid glass, use of a pneumatic conveyance method for removing shavings and saw dust from wood working machines. New developments include: installation of a high-pressure pneumatic conveyance system for transporting moulding mixture over a distance of 70 m, and installation of a medium-pressure pneumatic conveyor system for smoked earth. There are 3 photographs and 4 diagrams.

Card 2/2

25(5)

SOV/117-59-8-11/44

AUTHOR: Lyubimov, D.A., Head of the Bureau

TITLE: Experiences in the Mechanization of Production Processes  
in Foundry Shops

PERIODICAL: Mashinostroitel', 1959, Nr 8, pp 5-7 (USSR)

ABSTRACT: The article describes what was done at the Uralmashzavod to mechanize production processes. A total of 75% of the shaped castings are made on molding machines; 100% of the castings are mechanically knocked out of the molding boxes; the cleaning of 90% of the castings is mechanized; the transportation of casting materials is nearly entirely mechanized. In order to utilize machine molding for individual castings, it was decided to arrange the patterns, not on stationary, but on so-called coordinate molding boards, in which holes are drilled according to a system of coordinates. At the Uralmashzavod, for the first time in the Soviet Union, a molding machine

Card 1/3

SOV/117-59-8-11/44

Experiences in the Mechanization of Production Processes in  
Foundry Shops

with a 17 ton lifting capacity (Figure 1) and a vibrating molding board with a 40 ton lifting capacity were constructed and installed. This made possible the mechanization of the molding of 15 ton and heavier castings. Two years ago, in the foundry shop for shaped castings, mechanization was introduced with the aid of the cantilever, turning sand-slinger "296" of the Moscow plant "Stankolit". This made it possible to mechanize the packing of those molds which could not be placed on the boards of the available molding machines. The feeding of the molding mix to the sand slinger is entirely mechanized by means of feed belts. The work of knocking castings out of the moulding box has been mechanized by using special knock-out grates. The Uralmashzavod has designed and produced powerful mechanized knock-out grates having a lifting capacity of 10,

Card 2/3

SOV/117-59-8-11/44

Experiences in the Mechanization of Production Processes in  
Foundry Shops

30 and 40 tons. The knocking out of a large casting weighing 7 to 10 tons previously required several hours, but it can now be done on a mechanized knock-out grate in 10 to 15 minutes (Figure 2). Automated mixers, type "115", are being successfully used. A low pressure pneumatic system for the transportation of dry molding sand has been constructed at the plant and is in use. A hydraulic method is used for cleaning the castings. The plant has also completely mechanized several metal shot-blast chambers. The separation of shot, its delivery to the place from which it is fed into the blast chambers and other operations are all mechanized. The cleaning of castings in rotating drums is also being successfully done. There are 2 photos.

ASSOCIATION: Byuro novoy tekhniki ot dela glavnogo metallurga Uralmashzavoda (The Bureau of New Techniques of the Department of the Chief Metallurgist of Uralmashzavod)

Card 3/3

~~LYUBIMOV~~, D.A., nauchnyy red.; SERGEYEV, G.S., otv. za vypusk; MALLER,  
S.Z., tekhn. red.

[Metallography and foundry practice] Metallovedenie i liteinoe  
proizvodstvo; sbornik statei. Sverdlovsk, 1960. 105 p.  
(MIRA 14:9)

1. ~~Ural'skiy~~ mashinostroitel'nyy zavod. Sverdlovsk. Nauchno-  
~~issledovatel'skiy~~ institut tiazhelogo mashinostroyeniya.  
(Metallography) (Founding)

L 58822-65

ACCESSION NR: AR5000583

S/0271/64/000/009/B057/B058  
681.142:62

SOURCE: Ref. zh. Avtomat., telemekh. i vychisl. tekhn. Sv. t., Abs. 9B341

AUTHOR: Lyubimov, E. V.; Genchikmakher, A. G.; Semenovych, V. F.

TITLE: Physical and mathematical simulation of an MG-set-motor-drive system with a dynamoelectric amplifier under the dynamic starting and stopping conditions

CITED SOURCE: Sb. dokl. Konferentsii po primeneniyu vychisl. tekhn. i sredstv avtomatiki. Perm', 1963, 39-48

TOPIC TAGS: MG set motor drive, dynamoelectric amplifier, motor starting simulation, motor stopping simulation

TRANSLATION: The method of mathematical simulation of electrical-machine automatic systems provides a rather complete picture of starting and stopping transients. In simulating the MG-set-motor-drive system (MGS) with a dynamoelectric amplifier (DEA), the parameters of an automatic control system were determined and used for setting up the equations describing transient phenomena. A scheme is presented of physical model which yields an excavator characteristic; it has generator-voltage and cutoff-system armature-current negative feedbacks; it also has a DEA-voltage correcting circuit. Oscillograms of starting and stopping transients in the system

Card 1/3



58822-65

ACCESSION NR: AR5000583

are shown. The mathematical simulation was performed with the following assumptions: the armature reaction in the DEA and the generator is nil; the DEA and the generator operate under unsaturated conditions; no inductance in the MIS armature circuit; leakage fluxes in all units are neglected; the flexibility of the entire actuating mechanism is concentrated in the rope. The equations describing the system dynamics under the above assumptions are presented, as is a structural diagram based on these equations. This structural diagram was used for setting up a mathematical simulator on an MN-7 outfit. Parameters and unit models are given; also the scales of variables and transfer ratios of computing amplifiers are given. The curves of speed and armature-circuit current during starting and stopping are shown. Comparison of these curves with the oscillograms taken from the real physical model shows that the model does reproduce the nature of starting transients; the current curves diverge in the amount of overshooting and in the period of oscillation; the regulation time in starting the physical and the mathematical models is the same. The agreement between the stopping-transient curves is satisfactory. The curves obtained from the model have almost the same period and damping decrement as the real curves. They diverge in the amplitude of oscillations: the speed oscillations generated by the model have a greater amplitude than that determined from the real curve, while the current curve is higher in its steady-state value. The model reproduces the process with an inferior performance as compared to the

Card 2/3

L 58822-65

ACCESSION NO: AR5000583

System. Six illustrations. Bibliography: 7 titles.

SUB CODE: EE

ENCL: 00

*dm*  
Card 3/3

DINKEL', Al'fred Ivanovich, aspirant; IVUBIMOV Eduard Viktorovich, staryshiy  
prepodavatel'

Synthesis of an artificial control system of a mine blast drive.  
Izv.vys.ucheb.zav.; elektromekh. 8 no.9:1022-1029 '65.

(MIRA 18:10)

1. Kafedra elektrotekhniki Sverdlovskogo politekhnicheskogo instituta  
(for Dinkel'). 2. Kafedra avtomatik i telemekhaniki Sverdlovskogo  
politekhnicheskogo instituta (for Ivubimov).

LYUBIMOV, G. A.

Cand. Technical Sci.

"Theoretical Principles of a Ramming Driver for Drilling Deep Oil Wells."  
Sub 31 May 51, Petroleum Inst, Acad Sci USSR

Dissertations Presented for science and engineering degrees in  
Moscow during 1951.

SC: Sum. No. 420, 9 May 55

LYUBIMOV, R.

AID P - 276

Subject : USSR/Engineering

Card : 1/2

Author : Ioannesyan, R. A.

Title : Effect of inner pressure on longitudinal stability of the bottom portion of the drilling column at turbine drilling

Periodical : Neft. Khoz., v. 32, #4, 5-8, Ap 1954

Abstract : The author replies to B. B. Dadashev's critical comments on the author's book Theory and Technique of Turbine Drilling and also on M. T. Gusman's book Turbine Drilling of Oil Wells. The comments concern erroneous conclusions on the positive effect of pressure drop in the turbo-drill on the longitudinal stability of the bottom part of the drilling column. On the other hand, the author indicates a substantial error made by Dadashev in his theoretical formulation of acting forces as well as in his conclusions. The correctness of the author's analysis was confirmed by experiments conducted by his associates G. A. Lyubimov, V. L. Il'skiy and R. M. Eygeles.

Neft. Khoz., v. 32, #4, 5-8, Ap 1954 (additional card)

AID P - 276

Card : 2/2

Institution : All-Union Scientific Research Institute on Oil Well  
Drilling (VNIIburneft).

Submitted : No date

LYUBIMOV, G. A.

with N. I. Titkov and I. D. Sferina " Study of Turbine Drive Used in Deep Well Drilling"

Transactions of the Petroleum Institute, Acad. Sci. USSR, v. 11, Oil Field Industry, Moscow, Izd-vo AN SSSR, 1958. 346pp.

LYUBIMOV, G.A., doktor tekhn.nauk

Increasing the efficiency of turbodrill turbine stages. Trudy  
VNIIBT no.1:17-25 '58. (MIRA 11:12)  
(Turbodrills)



TITKOV, N.I.; LYUBIMOV, G.A.; SPERINA, I.D.

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